PLOTKIN, S., inzh.; KARPENKO, V., inzh.

Manufacture of large brick blocks for walls. Bud. mat. i konstr. 4 no.3:30-34 My-Je '62. (MIRA 15:5)
(Brick walls)

PLOTKIN, S.Ya.

M.V.Lomonosov and Soviet science. Vop.ist.est.i tekh. no.12: 67-74 '62. (MIRA 15:4)
(Lomonosov, Mikhail Vasil'evich, 1711-1765)

BOL'SHAKOV, K.A.; PLOTKIN, S.Ya.

Lomonosov Institute of Fine Chemical Technology in Moscow. Vop.-ist.est.i tekh. no.12:160-161 '62. (MIRA 15:4)
(Moscow--Chemical engineering)

PLOTKIN, S., kand.tekhn.nauk

Voluntary Society of the Soviet Intelligentsia. NTO 7 no.3:61-63 Mr '65. (MIRA 18:5)

L 65006-65 EWP(e)/EWT(m)/EPF(c)/EPR/T/EWP(t)/EWP(b) IJP(c)/APL JD/WW/JG/AT/RM/TH

ACCESSION NR: AP5012192 UR/0030/65/000/004/0114/0116

AUTHOR: Plotkin, S. Ya. (Candidate of technical sciences) 70 46 B

TITLE: New materials and their role in industrial progress

SOURCE: AN SSSR. Vestnik, no. 4, 1965, 114-116

TOPIC TAGS: chemical engineering, chemical conference, synthetic material, refractory compound, metal purification, high purity metal

ABSTRACT: A scientific conference on raw materials and their role in industrial progress was held in Leningrad [illegible] the Department of Physical Chemistry and the Technology of Inorganic Materials, the Department of General and Engineering Chemistry, the Institute of the History of Natural Sciences and Engineering (all Academy of Sciences USSR), and the Soviet National Association of Historians of the Natural Sciences and Engineering.

N. [illegible]voronkov, in his opening speech, stated that under modern [illegible] the conversion of raw materials and semiproducts into materials having a desired complex of properties is the main task of chemistry.

L 65006-65

ACCESSION NR: AP5012192

17

Modern materials are required to have high mechanical and electrical properties and high heat, corrosion, and oxidation resistance. The mutual solubility of elements and the ability to form chemical compounds makes it possible to design numerous alloys with a combination of desired properties. Traditional efforts to develop heat-resistant steels should be expanded to include the "big four," niobium, tantalum, molybdenum, and tungsten, and rare earth elements. Also, the research in the field of inorganic polymers which combine elasticity with high heat resistance is of considerable interest. Silicalls which are transparent for the visible part of the light spectra and a certain range of radio waves and are characterized by small dielectric losses are of great importance.

M. M. Koton reported on the use of plastics in engineering, construction, and industry and put special emphasis on heat-resistant polymers.

G. A. Meyerson discussed refractory and hard compounds and their importance in modern engineering. Oxygenless refractory compounds, such as

ACCESSION NR: AP5012192

high refractoriness with high corrosion resistance a[illegible] peratures.

4455

A. I. Belyayev's report dealt with the purification of metals and the role of high-purity metals in engineering. New sophisticated chemical, physical, and physicochemical methods of purification and new methods of [illegible] traces of impurities have been developed. The respective [illegible] and nickel achieved in 1964 amounted to [illegible], and [illegible]. Almost all metals are now produced in high-purity grades, which alleviated the problem of creating high-strength materials with [illegible]

...materials with desired properties.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE:

NO REF SOV: 000 OTHER: 000 ATD Press: 3073-F

Card 3/3

PLOTKIN, S.Ya.; GAVRILOV, Ye.G., inzh.

Brief news. Fiz. v shkole 23 no.5:109-112 S-O '63. (MIRA 17:1)

1. Institut istorii yestestvoznaniya i tekhniki AN SSSR (for Plotkin). 2. Byuro po delam ratsionalizatsii i izobretatel'stva Ministerstva prosveshcheniya RSFSR.

PLOTKIN, S.Ya.

Brief news. Porosh. met. 2 no.6:106 N-D '62. (MIRA 15:12)
(Powder metallurgy—Congresses)

PLOTKIN, S.Ya., kand.tekhn.nauk (Moskva)

Eminent scientist and citizen. Priroda 52 no.8:121-122 Ag '63.
(MIRA 16:9)
(Luginin, Vladimir Fedorovich, 1834-1911)

PLOTKIN, S. Ya.

Important tasks confronting natural scientists and technologists.
Vop. ist. est. i tekh. no.13:3-6 '62. (MIRA 16:5)

(Natural history) (Technology)

PLOTKIN, S.Ya., kand. tekhn. nauk

New materials and their role in the development of production; conference in Leningrad. Vest. AN SSSR 35 no.4:114-116 Ap '65. (MIRA 18:6)

PLOTKIN, S.Ya.

V.I.Vernadskii; one the one-hundredth anniversary of his birth.
Khim.v shkole 18 no.2:11-14 Mr-Ap '63. (MIRA 16:4)

1. Institut istorii yestestvoznaniya i tekhniki AN SSSR.
(Vernadskii, Vladimir Ivanovich, 1863-1945)

PLOTKIN, S. Ya.

Outstanding scientist and pedagogue; on the occasion of the 25th anniversary of A. N. Reformatskii's death. Khim. v shkole 17 no.6:16-19 N-D '62. (MIRA 16:1)

1. Institut istorii yestestvoznaniya i tekhniki AN SSSR.

(Reformatskii, Aleksandr Nikolaevich, 1864-1937)

PLOTKIN, S.Ya.

The history of powder metallurgy. Vop.ist.est. i tekh. no.11: 119-124 '61. (MIRA 14:11)
(Power metallurgy)

PLOTKIN, S.Ya., kand.tekhn.nauk (Moskva)

"Reflection of M.V. Lomonosov's scientific works in the Russian literature of the 18th and 19th centuries" by IU.I. Solov'ev, N.N. Ushakova. Reviewed by S.IA. Plotkin. Priroda 51 no.11:40 N '62. (MIRA 15:11)

(Science)
(Lomonosov, Mikhail Vasil'evich, 1711-1765)
(Solov'ev, IU.I.) (Ushakova, N.N.)

PLOTKIN, S., inah.

Improve the factory production of series 1-464 large-panel buildings. (MIRA 15:12)
Bud.mat.i konstr. 4 no.6:1-6 N-D '62.
(Precast concrete)

ODING, I.A., otv. red.; PLOTKIN, S.A., red.; CHERNOV, A.N., red.; GUSEVA, A.P., tekhn. red.

[Strength of metals under cyclical variations of stress] Prochnost' metallov pri peremennykh nagruzkakh; materialy. Moskva, Izd-vo AN SSSR, 1963. 299 p. (MIRA 17:1)

1. Soveshchaniye po ustalosti metallov, 3d, 1962. 2. Chlen-korrespondent AN SSSR (for Oding).

PLOTKIN, S.Ya., kand.tekhn.nauk (Moskva)

"Dmitrii Ivanovich Mendeleev" by N.A. Figurovskii. Reviewed by S.IA. Plotkin. Priroda 51 no.8:126 Ag '62. (MIRA 15:9)
(Mendeleev, Dmitrii Ivanovich, 1834-1907)
(Figurovskii, N.A.)

PLOTKIN, S.Ya.

"Concise history of the chemical industry of the U.S.S.R. by P.M. Luk'ianov. Reviewed by S. IA.Plotkin. Khim.prom. no.3:221 Mr '61. (MIRA 14:3)

(Chemical industries) (Luk'ianov, P.M.)

SAMSONOV, G.V., doktor tekhn. nauk; PLOTKIN, S.Ya., kand. tekhn. nauk

Powder metals in the manufacture of chemical equipment. Khim. mash. no.4:37-40 Jl-Ag '59. (MIRA 12:12)
(Powder metallurgy) (Chemical engineering--Equipment and supplies)

SAMSONOV, Georgiy Valentinovich; PLOTKIN, Semen Yakovlevich; OL'KHOV, I.I., redaktor; GOLYATKINA, A.G., redaktor izdatel'stva; EVENSON, I.M., tekhnicheskiy redaktor

[Production of iron powder] Proizvodstvo zheleznogo poroshka. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 348 p. (MLRA 10:7)
(Powder metallurgy)

LIBMAN, Ed.P., kand.ekonom.nauk (Moskva); PLOTKIN, S.Ya., kand.tekhn. nauk (Moskva)

At the sources of scientific work on rare metals. Priroda 53 no. 12:81-83 '64. (MIRA 18:1)

PLOTKIN., S.Ya.

Outstanding scientist and engineer. Metallurg 10 no.1:39-40 Ja '65. (MIRA 18:4)

1. Institut istorii yestestvoznaniya i tekhniki AN SSSR.

YANSHIN, A.L., akademik; YAKOVLEV, Yu.Ya. (Moskva); PLOTKIN, S.Ya., kand.tekhn. nauk (Moskva); GVOZDETSKIY, N.A., prof.; NOVIK, I.B. (Moskva); SVINTSITSKIY, V.N. (Moskva); KOZLOV, V.V. (Moskva); SULIDI-KONDRAT'YEV, Ye.D. (Moskva); BELOV, S.V. (Leningrad)

Books. Priroda 54 no.7:56-57; 71; 104-111 Jl '65.

(MIRA 18:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova (for Gvozdetskiy).

SOV/122-59-5-18/32

AUTHORS: Plotkin, S.Ya., Candidate of Technical Sciences, and Samsonov, G.V., Doctor of Technical Sciences

TITLE: On the Pressing of Metal Powders (O pressovanii metallicheskikh poroshkov)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 53-56 (USSR)

ABSTRACT: Investigations are reported on the behaviour of metal powders during pressing. To examine the effect of the duration of pressure application, iron powder, obtained by the reduction of scale, and tungsten powder of 4.2 microns mean particle size were pressed in a cylindrical steel mould at pressures of 2, 4 and 6 tons/cm^2. The duration was varied between instantaneous application and 3 minutes. Briquettes so compressed were sintered in a hydrogen atmosphere at 1000-1150°C for iron and 2100°C for tungsten during 1 hour. The density of iron pressings increased with pressure and duration, e.g. from 4.30 g/cm^3 to 5.65 g/cm^3 between 2 and 6 tons/cm^2 and from 5.65 g/cm^2 to 6.74 g/cm^2 between instantaneous and 3 minute durations, both at 6 tons/cm^2. The density drops after sintering e.g. from 6.74 to 5.83 g/cm^3. The

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On the Pressing of Metal Powders

effects of pressure and duration are similar in principle for tungsten pressings but sintering increases the density, e.g. from 11.52 to 14.20 g/cm^2 when sintered after pressing for 3 minutes at 6 tons/cm^2. The "spring-back" of pressings was examined by measuring the height of a 12.3 mm diameter cylinder before and after the release of pressure. A range of particle sizes and pressures was examined with tungsten, tungsten carbide, iron, copper and aluminium powders. The values of spring-back plotted over the pressure (Fig 1) show a moderate rise but also a drop beyond 6 tons/cm^2 in the case of tungsten carbide. Values range between 1.5 and 2.8%. Tungsten and copper powder pressings were made in a cylindrical mould of 12 mm diameter, followed by pulverising the pressing and repeated pressing. Up to 3 repetitions were carried out. The density goes on increasing from pressing to pressing in copper, provided the subsequent pressure is at least equal to the preceding. The effect

On the Pressing of Metal Powders

is much smaller in tungsten powder pressings. Following H. Unckel (Arch. Eisenhüttenwesen, 18, 161, 1945) the pressure distribution in the mould was examined with a special mould incorporating soft copper rings, into which 4 steel balls are pressed (Fig 2). The sub-division between the pressure on the mould bottom and the friction force on the mould walls can be found. The present tests were mainly concerned with means of reducing the wall friction compon[illegible]. Copper powder obtained by the reduction of co[illegible] oxide with hydrogen to a mean particle size of 2-3 microns, iron powder of 2-3 microns and tungsten powder obtained by the reduction of tungsten anhydride were tested with a lubricant consisting of a 4% solution of paraffin wax in petrol (150 cm^3 of lubricant per 100 g of powder). Pressures between 0.4 and 2.5 tons/cm^2 were tried. The friction force component increases with rising pressure without lubricant but decreases with lubricant. Seizure of the mould walls by the powder may be the explanation. The increase of

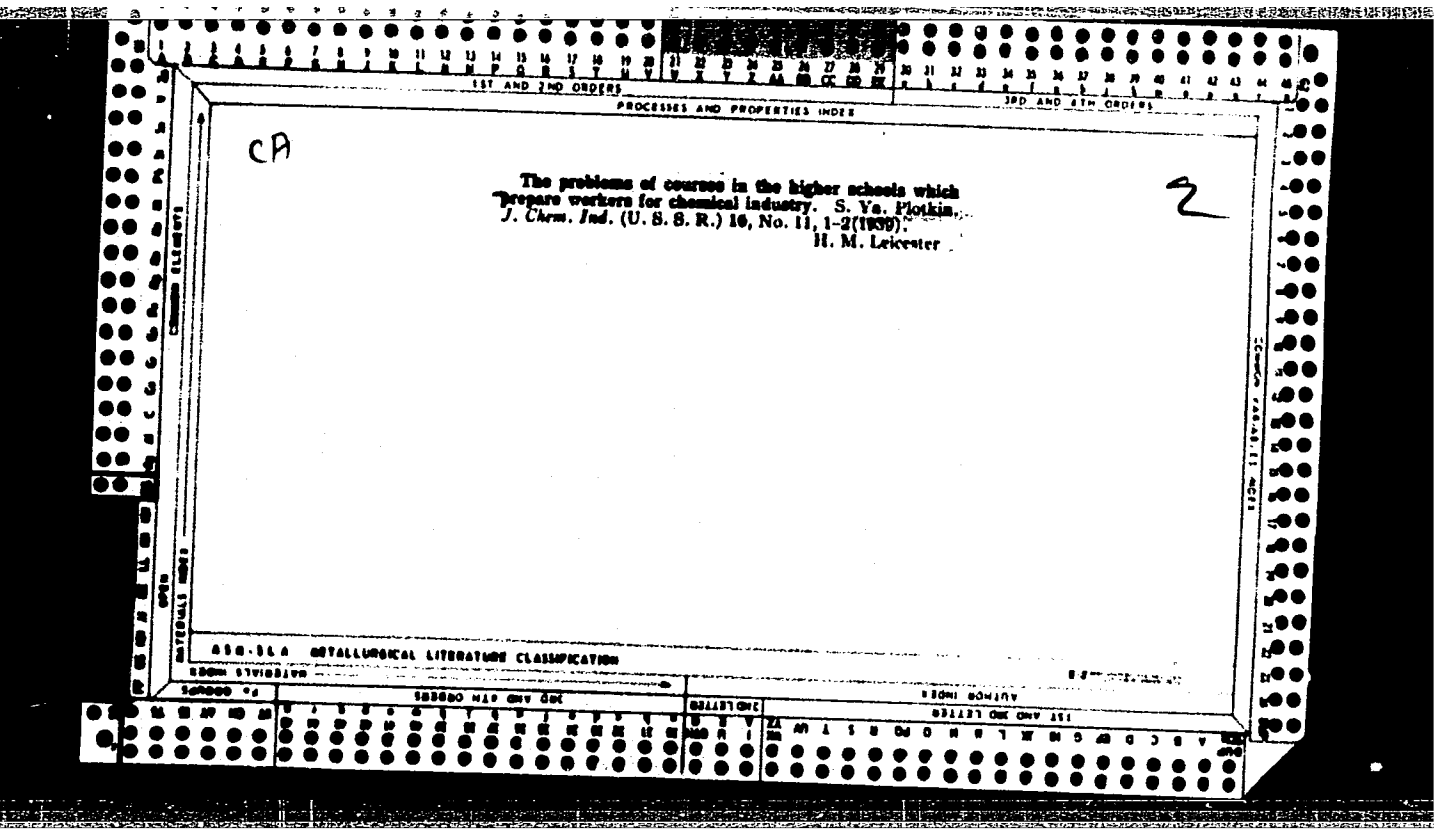
On the Pressing of Metal Powders

friction force with pressure in iron powder is pronounced. The residual porosity falls with increasing pressure, particularly in copper (by a factor of 2 without lubricant and 3 with lubricant). The strength and hardness in copper and tungsten are lower with lubricant than without, while in iron they are equal either with lubricant or without. There are 2 figures, 5 tables and 3 references, 2 of which are Soviet and 1 German.

PLOTKIN, S. Ya.

SAMSONOV, G.V., kand. tekhn. nauk; PLOTKIN, S.Ya., kand. tekhn. nauk.

Cermets for chemical industry. Khim. prom. no.2:106-110 Mr '58. (MIRA 11:5)
(Cermets)
(Chemical industries--Equipment and supplies)
(Powder metallurgy)



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SOV/63-4-2-3/39

AUTHOR: Plotkin, S.Ya., Candidate of Technical Sciences

TITLE: The Results of the VIIIth Mendeleyev Congress

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, pp 145-153 (USSR)

ABSTRACT: The VIIIth Mendeleyev Congress, convened by the All-Union Chemical Society, took place in Moscow from March 16 to 23, 1959. It was also attended by chemists from Austria, England, Belgium, Holland, Italy, USA, France, West Germany, etc. In the plenary sessions 11 reports were read. The President of the USSR Academy of Sciences, Academician A.N. Nesmeyanov; the President of the Central Board of the All-Union Chemical Society; the honored scientist, Professor I.P. Losev and others were in the Chair. The President of the State Committee for Chemistry in the Council of Ministers of the USSR, V.S. Fedorov, read a report on "The Tasks of Scientific-Technical Progress in the Chemical Industry" in which he mentioned that the production of synthetic fibers, wool substitutes, mineral fertilizers, chemical poisons, synthetic resins and plastics is insufficient. A new powerful industry producing polyethylene and polypropylene for tubes, films, electric insulating

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material, fibers, etc must be developed. Academician V.A. Kargin read a paper on "The Principal Problems of the Chemistry of Polymers"; Academician A.N. Nesmeyanov on: "D.I. Mendeleyev's Periodical System of Elements and the Organic Chemistry"; Academician N.N. Semenov on: "The Principal Problems of Chemical Kinetics", in which he mentioned the principal role of free radicals in chain reactions; Academician A.P. Vinogradov on: "The Principal Problems of Radiochemistry"; Academician V.A. Engel'gardt on: "The Principal Problems of Biochemistry"; the Corresponding Member of the AS USSR Ya.K. Syrkin on: "The Principal Problems of Valency"; V.B. Nikolayev on: "The Tasks of Chemical Machine Building"; Academician A.P. Aleksandrov on: "The Chemical Aspects of the Utilization of Nuclear Energy"; Academician V.I. Spitsyn on: "The Present State of the Periodic Law of Mendeleyev"; Professor A.V. Sokolov on: "The Chemical Problems of the Agriculture of the USSR"; the Chinese scientist Liu Ta-kang on: "The Principal Directions of Development of Inorganic Chemistry"; L. Koldits and E. Tilo (GDR) on "Monomeric and Polymeric Fluoroarsenite and Fluoroantimonite"; R. Ripan (Rumania) on: "The Investigation of Isopolyacids by Means of Radioactive Isotopes"; K. Nenicescu (Rumania) on the complex of cyclobutadiene with silver nitrate; G. Schott (GDR) on the stability and the hydrolytic properties of silicon-organic compounds; A.N. Nes-

meyanov and coworkers on the chemistry and technology of element-organic compounds; V. Kemulya (Poland) on the polarographic determination of small admixtures by means of a hanging droplet; Ye. Minchevskiy (Poland) on titration in a non-aqueous medium; G. Sag (Hungary) on gas chromatography; K. Nicolau (Rumania), G. Thoma (GDR), J. Hurwic (Poland) and Ch. Sackmann (GDR) on the behavior of liquid-crystalline phases in binary mixtures; B. Tezak (Yugoslavia) on: "Three-Dimensional Models of Precipitating Systems in statu nascendi"; Z.Ya. Berestneva and V.A. Kargin on electron-microscopic investigations of the crystallization process of colloidal titanium dioxide; Li Hsing-ji (China) on: "Investigation of the Process of Preparing the Synthetic Fiber Vinylon (From Polyvinyl Alcohol)"; D.Kóranyi (Hungary) on the surface properties of glass. It has been proposed to establish a

closer contact between chemists and mathematicians and physicists. A House of Chamistry should be built in Moscow.

AUTHORS: Samsonov, G. V., Candidate of Technical Sciences, Plotkin, S. Ya., Candidate of Technical Sciences 64-58-2-8/16

TITLE: Powder Metallurgical Materials for Chemical Industry (Metallokeramicheskiye materialy dlya khimicheskoy promyshlennosti)

PERIODICAL: Khimicheskaya Promyshlennost', 1958, Nr 2, pp. 42-46 (USSR)

ABSTRACT: The present paper gives a survey on the kinds of production as well as on the various types of finished products of powder metallurgy. It is mainly foreign processes and finished products which are mentioned. In the production of powder the authors point out the importance of structural characteristics as well as of the size of particles, with physico-chemical and mechanical methods of production being mentioned. A table of the characteristic features of metal powders obtained by different methods is given. The pressing and sintering of metal powder or powder mixtures respectively are carried out either simultaneously or by soaking the porous pressed article in liquid metal, or also by means of a pressing into bands and other forms

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with plastifying additions or resins. An aftertreatment of the sintered finished product by thermal or chemico-thermal treatment can take place to raise the quality of the article. In the detailed description of powder metallurgical filters among others some production methods are mentioned with the pictures and the individual data of single filters produced of iron granulate mixed with graphite- or bronze granulate, respectively, being mentioned. The properties of the filter as well as the filtration effect depending on various properties, and also the possibilities of arranging the filters are described. "Zinterit" is mentioned for the solidification of packings as well as a material developed analogously to it by V. P. Makhayev (Ref. 19) which is obtained in pressed bands from iron sponge mixed with 18% of petroleum bitumen. In the description of porous electrodes for electro-chemical processes the investigations by L! L. Kuz'min and V. S. Poroykova (Ref. 2o) with porous iron cathodes with a highly active surface for the reduction of hydrogen excess voltage are

described. A bronze graphite (87-90% Cu, 9-10% Sn, the rest is graphite) with a possible addition of lead or iron graphite (97-98% Fe, 2-3% graphite) is mentioned in the production of porous friction bearings. A composition of: 60%-75% Cu, 9-10% Sn, 5-8% graphite, 6-15% Pb, 0-6% Si and up to 10% Fe is mentioned for powder metallurgical friction disks. The properties of titanium and of its alloys, tantalum and its alloys as well as of tungsten, molybdenum and its alloys are described among the chemically resistive metallic and non-metallic alloys for chemical apparatus. The especially high resistance to corrosion of the finished products made of carbides, nitrides, borides and silicides is pointed out and explained. Among the non-metal materials produced and worked according to powder metallurgic methods the carbides and nitrides of silicon, boron carbides as well as various alloys with these additions are mentioned. Apart from those uses above mentioned powder metals also find a direct use in chemical processes in the investigation of various compounds,

in the production of metal chlorides, iodides, nitrides, hydrides and borides as well as in a number of organic processes of synthesis. The production of porous materials for catalytic processes as well as the use of organosol= metals for anti-detonation materials and many others are mentioned in particular.
There are 4 figures, 3 tables and 28 references, 15 of which are Soviet.

AVAILABLE: Library of Congress

1. Powder metallurgy--USSR 2. Powders--Production

PLOTKIN, V.A.

Structure of teeth in the embryos of toothed whales. Zool. zhur. 40 no.12:1901-1902 D '61. (MIRA 15:3)

1. Laboratory of Whale-Fishing and Ichthyology, Azovo-Black Sea, Research Institute of Marine Fishery Management and Oceanography, Odessa.

(Whales) (Teeth)

PLOTKIN, V.I.

Plotkin, V. I. On the theory of noncommutative groups without torsion. Doklady Akad. Nauk SSSR (N.S.) 73, 655–657 (1950) (Russian)

An R-group, of which every factor-group modulo an invariant isolated subgroup is also an R-group, is called an R^*-group. For terminology see the review of a paper by Kontorovič [Mat. Sbornik N.S. 22(64), 79–100 (1948); these Rev. 9, 493]. A normal series, every factor of which is isomorphic to a subgroup of the additive group of rational numbers is called a rational series. Let $\mathfrak{G}$ be an R^*-group with an ascending invariant rational series. Then $\mathfrak{G}$ contains an isolated invariant subgroup $\mathfrak{G}'$ such that $\mathfrak{G}'$ has an ascending central series and the quotient group $\mathfrak{G}/\mathfrak{G}'$ is Abelian and torsion-free. Through an arbitrary isolated invariant subgroup of $\mathfrak{G}$ can be passed an ascending invariant rational series. Additional results are found for a particular case of R^*-groups, namely torsion-free groups with the normalizer condition. In such a group, the existence of an ascending invariant rational series is equivalent to the existence of an ascending central series. *R. A. Good.*

Source: Mathematical Reviews, Vol 12, No. 3.

PLOTKIN, V.I.

Effect of stimulation of the proprioceptors on the function of the vasodilation center in hypertension. Klin. med. 38 no. 2:101-104 F '60. (MIRA 14:1)

(HYPERTENSION) (MUSCLES)

PLOTKIN, V. Ya.

Mechanism of the action of sera from anemic patients; on the influence of the administration of sera on the pigment metabolism. Probl. gemat. i perel. krovi no.12:22-24 '61. (MIRA 15:6)

1. Iz laboratorii fiziologii krovoobrashcheniya (zav. - prof. G. P. Konradi) terapevticheskogo sektora (zav. - prof. A. Ya. Yaroshevskiy) Instituta fiziologii imeni I. P. Pavlova (dir. - akad. V. N. Chernigovskiy) AN SSSR.

(ANEMIA) (SERUM)

PLOTKIN, Ya.D.

Determining the technical and economic efficiency of measuring and controlling systems. Priborostroenie no.11:18-24 N '61. (MIRA 14:10)

(Measuring instruments)
(Automatic control)

PLOTKIN, Ya.D.; SHRAG, N.I.

On A.S.Konson's book. Priborostroenie no.3:38-39 Mr '[illegible]. (MIRA 17:6)

1. Kafedra ekonomiki, organizatsii i planirovaniya mashinostroitel'nykh predpriyatiy L'vovskogo politekhnicheskogo instituta.

PLOTKIN, Ja.D. [Plotkin, Ya.D.]

On the determination of the technical and economic effectiveness of measuring and controlling devices. Pomiary 8 no.6:235-238 Je '62.

PLOTKIN, Ya.D.

Preliminary calculation of the cost of instruments. Priborostroenie no.10:19-22 O '63. (MIRA 16:11)

22(1)

SOV/3-59-5-10/34

AUTHORS: Adaryukov, N.N., and Plotkin, Ya. D., Engineers

TITLE: Our Readers Suggest

PERIODICAL: Vestnik vysshey shkoly, 1959, Nr 5, p 31 (USSR)

ABSTRACT: The authors emphasize the necessity of appointing in enterprises special workers who constantly handle matters relating to the organization of production. This idea has already been realized in many installations, but to a full extent it will be carried out only when the vuzes will train engineers of a corresponding specialty. The authors believe that the engineer-economists, presently trained by the L'vov Polytechnical Institute, could successfully fill the position of engineers supervising the organization of production providing their knowledge on matters of technology and organization of production, is somewhat increased.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical Institute)

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PLOTKIN, Yakov Danilovich, kand. ekon. nauk; TAURIT, G.E., inzh., retsenzent

[Technical and economic efficiency of measuring and regulating devices] Tekhniko-ekonomicheskaia effektivnost' izmeritel'nykh i reguliruiushchikh ustroistv. Kiev, Tekhnika, 1965. 201 p. (MIRA 18:9)

PLOTKIN, Ya. S., BAKBARDIN, Yu. V., FILIPPENKO, V. I. and ZIL'BERMAN, R. I.

"On Eye Injuries".

Voyenno Meditsinskiy Zhurnal, No. 4, 1962

SOV/58-59-12-28311

Translation from: Referativnyy zhurnal, Fizika, 1959, Nr 12, pp 259 - 260 (USSR)

AUTHORS: Plotkin, Ye.I., Karateyev, B.V., Yudina, O.M.

TITLE: On the "Ionophone"-Type Electroacoustical Transducer

PERIODICAL: Tr. Nauchno-tekhn. konferentsii Leningr. elektrotekhn. in-ta svyazi., Nr 3, Leningrad, 1959, pp 39 - 46

ABSTRACT: A description is given of the first experimental model of an ionophone, developed at the Leningrad Electrical-Engineering Institute of Communication. The electric power supply circuit diagram is submitted, as well as the main electroacoustical characteristics of the ionophone.

Author's résumé

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S/112/60/000/010/004/004
A052/A101

6.8000 (also 1031, 1159)

AUTHORS: Plotkin, Ye.I.; Karateyev, B.V.; Yudina, O.M.

TITLE: "Ionophone"-type electroacoustic converter

PERIODICAL: Referativnyy zhurnal. Elektrotekhnika, 1960, no. 10. 350, abstract 6.9539. (Tr. Nauchno-tekhn. konferentsii Leningr. elektrotekh. in-ta svyazi, no. 3, Leningrad, 1959, 39 - 46)

TEXT: The first test model of the ionophone, developed by the Leningrad Electrotechnical Institute of Communication, is described as well as the principle of the converter and a detailed basic circuit of the h-f generator, the main power supply element of the converter. It is pointed out that in its present form the ionophone differs considerably from the initial model proposed by Z. Kleyn and can be considered as a sufficiently promising type of an inertialess electroacoustic converter. The device can be tuned in such a way that noises are practically not perceived. Amplitude and frequency characteristics of the ionophone are given. It is possible to use the ionophone in 2-band acoustic units for reproducing the upper audio frequency sub-band and in single-band acoustic

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PLOTKIN, Ye.I.

Ionic loudspeaker and the increasing of its efficiency. Izv.vys. ucheb.zav.; prib. 3 no.2:9-16 '60. (MIRA 14:4)

1. Leningradskoy elektrotekhnicheskiy institut svyazi imeni M.A. Bonch-Bruyevicha. Rekomendovana kafedroy radioveshchaniya i akustiki.
(Loudspeakers)

S/032/62/028/002/019/037
B139/B104

AUTHORS: Plotkin, Ye. P., and Molchanov, Ye. I.

TITLE: Application of thermocolors to measure the temperature of machine parts

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 2, 1962, 203 - 205

TEXT: The authors used thermocolors developed by the Kafedra tekhnologii lakov i krasok Moskovskogo khimiko-tekhnologicheskogo instituta im. Mendeleyeva (Department for the Technology of Varnishes and Colors of the Moscow Institute of Chemical Technology imeni Mendeleyev) and produced by the "Svobodnyy trud" Plant in Yaroslavl', to determine the temperatures at which a change in color occurs after long-time heating. A plate 45 mm long, 0.5 mm thick and of varying width made of stainless steel and provided with a thermocolor coating, was heated with about 100 a a-c. The temperature field was checked by a thermocouple soldered to the back of the plate. The boundary line of color change during long-time heating shifted toward lower temperatures. For 30 min heating, the

Card 1/2

ZHOLUDOV, Ya.S., inzh.; PLOTKIN, Ya.I., kand. tekhn. nauk

Study of the temperature conditions of a finned pipe. Teploenergetika 12 no.6:35-39 Je '65. (MIRA 18:9)

1. ZiO i Vsesoyuznyy nauchno-issledovatel'skiy teplotekhnicheskiy institut.

PLOTKIN, Ye.R., kand. tekhn. nauk; MOLCHANOV, Ye.I.

Temperature field of gas turbine blades in nonsteady operation.
Teploenergetika 11 no.6:28-32 Je '64. (MIRA 18:7)

1. Vsesoyuznyy teplotekhnicheskiy institut.

L 39279-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/EPR/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4
EM/JD/HW/GS

ACCESSION NR: AT5000824 S/0000/64/000/004/0250/0255

AUTHOR: Plotkin, Ye. R.(Moscow)

TITLE: The problem of the elastic-plastic stressed condition of a blade during thermal shock

SOURCE: Nauchnoye soveshchaniye po teplovym napryazheniyam v elementakh konstruktsiy, 4th. Teplovyye napryazheniya v elementakh konstruktsiy (Thermal stresses in construction elements); doklady soveshchaniya, no. 4. Kiev, Naukova dumka, 1964, 250-255

TOPIC TAGS: gas turbine, turbine blade, turbine blade design, turbine blade thermal stress, elastic plastic stress, thermal shock, thermal fatigue

ABSTRACT: High thermal stresses arise in gas turbine blades when the gas temperature changes sharply. These stresses may even exceed the yield point of the blade material at these temperatures. The present paper investigates the elastic-plastic stressed condition of a stator blade with a temperature field which was studied experimentally for various transient speeds of the turbine, including starting. The highest temperature gradient in the blade was shown to be 400C and over. On the

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L 39279-65
ACCESSION NR: AT5000824

basis of experimental data and by means of a hydraulic integrator, the problem was solved for variable heat transmission, allowing the author to estimate the conditions of heat exchange to the blade surface and to determine the temperature field of the blade when starting. At first, the thermal stresses were calculated without taking into account plastic deformation of the blade. It was found that the stresses increased rapidly and reached a maximum after 30-40 seconds. At the leading and trailing edges, as well as along the entire convex surface of the blade, compression stress arises, while tension stress appears at the middle and concave part of the blade. This complicated stress distribution is caused by thermal elastic bending of the blade, considering that the blade preserves elasticity during the entire process. The tests showed that there was actually plastic deformation of the blade. Therefore, an elastic-plastic solution had to be found. Calculations are given for starting of the turbine, when the highest stresses appear. Analysis of the results of elastic-plastic stress calculations indicates that very high deformations arise at the leading edge of the blade, resulting in some residual tensile stresses. This leads to thermal fatigue when the gas temperature reaches 1200C. Orig. art. has: 4 figures and 7 formulas.

Card 2/3 SUBMITTED: 2 JUNE 64

PLOTKIN, Ye.R., kand. tekhn. nauk; MOLCHANOV, Ye.I., kand. tekhn. nauk

Heat transfer to the surface of gas turbine blades.
Teploenergetika 11 no.11:72-74 N '64. (MIRA 17:12)

1. Vsesoyuznyy teplotekhnicheskiy institut.

MOLCHANOV, Ye.I., kand.tekhn.nauk; PLOTKIN, Ye.R., kand.tekhn.nauk; GONCHARENKO, Z.F., inzh.

Study of the temperature fields of the runner blade of a cooled by air blown through gaps in its tail joints. Energomashinostroenie 11 no.1:4-7 Ja '65. (MIRA 18:4)

L 15807-65 EWT(m)/EWP(w)/EWP(v)/EWP(k) Pf-4 AEDC(b)/AEDC(a)/SSD/BSD/ASD(f)-2/AS(mp)-2/ASD(p)-3 EM

ACCESSION NR: AP4047993 S/0096/64/000/011/0072/0074

AUTHORS: Plotkin, Ye. R. (Candidate of technical sciences); Molchanov, Ye. I. (Candidate of technical sciences)

B

TITLE: Heat transfer to the surface of gas turbine blades 26

SOURCE: Teploenergetika, no. 11, 1964, 72-74

TOPIC TAGS: turbine blade, turbine blade cooling, heat transfer, heat transfer coefficient

ABSTRACT: In order to obtain surface heat transfer coefficients for gas turbine blades under actual operating conditions, a guide blade in the second stage of the gas turbine installation described previously by Ye. R. Plotkin and Ye. I. Molchanov ("Teploenergetika" No. 9, 1962) was instrumented with six thermocouples. These thermocouples measured the temperature distribution along the centerline of the blade profile. The temperature profiles and the temperature of the inlet air were recorded as a function of time during turbine start-up (0-3800 r.p.m. in 100 seconds, inlet air temperature peak 1200C at 35 seconds) and turbine shutdown. The experimental results were used to determine the heat transfer coefficient along the blade profile by solving the transient heat transfer problem using a hydraulic integrator. The blade profile was divided into 32 sections (see Fig. 1 on the

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L 15807-65
ACCESSION NR: AP4047993

Enclosure) whose heat capacity was modeled by the area of the containers in the hydraulic model ω_i, and the thermal resistance $R_{i,j}$ between sections was modeled by the hydraulic resistance $P_{i,j}$. It was found that the maximum heat transfer coefficient occurred at the leading edge of the blade and was as high as 1300 w/m^2K. The average $\alpha_{av} = \frac{1}{L}\int_L \alpha\, dL$ was determined as a function of time and is shown in Fig. 2 on the Enclosure. The heat transfer coefficient was also determined theoretically using boundary layer theory and finding the transition region with the help of nomograms. The results were low compared with the theoretical results. However, assuming a turbulent boundary layer along the whole profile, they gave a heat transfer coefficient which was close to the experimental value. Orig. art. has: 6 figures.

ASSOCIATION: Vsesoyuzny*y teplotekhnicheskiy institut (All-Union Heat Technology Institute)

SUBMITTED: 00 ENCL: 02

SUB CODE: PR, TD NO REF SOV: 004 OTHER: 001

Card 2/4

L 15807-65
ACCESSION NR: AP4047993

ENCLOSURE: 01

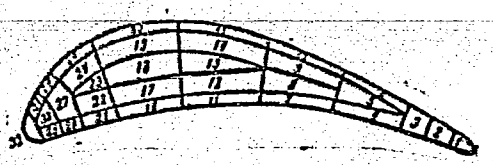

Fig. 1. Sectioning of the blade profile

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L 15807-65
ACCESSION NR: AP4047993

ENCLOSURE: 02

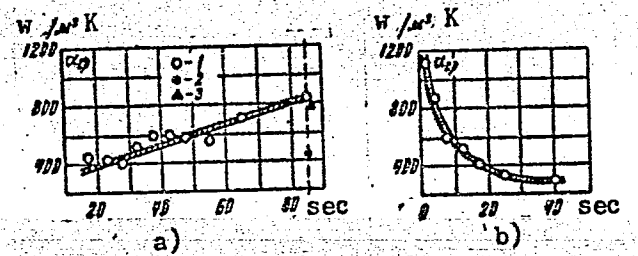

Fig. 2. Change of α_{av} as a function of time during transient operation of the turbine. a - during starting; b - after combustion chamber shut-down
1 - results of processing the experimental data on the hydraulic integrator; 2 - calculations based on the TsKTI method; 3 - calculations based on a fully turbulent boundary layer.

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ACCESSION NR: AP4037636 S/0096/64/000/006/0028/0032

AUTHOR: Plotkin, Ye. R. (Candidate of technical sciences); Molchanov, Ye. I. (Candidate of technical sciences)

TITLE: Temperature field of a gas turbine blade under transient conditions

SOURCE: Teploenergetika, no. 6, 1964, 28-32

TOPIC TAGS: turbine blade, turbine blade test, turbine blade temperature, gas turbine

ABSTRACT: The principal factors affecting the equilibrium of the temperature field under transient conditions are presented from the standpoint of theory and experiment. Calculation error resulting from approximating assumptions was evaluated through comparison with exact solutions obtained by the method of hydraulic analogy. It was found that the error in estimating the greatest temperature difference occurring in the blade under transient conditions is relatively small, and that for real values of the coefficient of heat transfer to the surface and the coefficient of heat conductivity of the blade metal ($\alpha > 200$ w/m^2-deg; $\lambda < 40$ w/m-deg) this error does not exceed 20-30%. (At a low rate of heat

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ACCESSION NR: AP4037636

transfer from the gas to the blade and a high heat conductivity of the metal, the error could be large.) The assumptions permit the temperature field of each segment of the blade cross-section to be calculated as the field of an equivalent plate with a thickness 2h, corresponding to the thickness of the given segment, and with corresponding boundary conditions. By examining the change in mean temperature of the plate under transient conditions, simple relations can be obtained for various particular cases. For instance, for an instantaneous change in gas temperature from t_0 to t^*_g

$$\theta = 1 - e^{-k\tau} \qquad (1)$$

and for a gradual change of t_g from t_0 to t^*_g for the time τ^*

$$\theta = \frac{\tau}{\tau^*}\left(1 - \frac{1 - e^{-k\tau}}{k\tau}\right), \text{ for } \tau \leq \tau^*$$

and

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ACCESSION NR: AP4037636

$$\theta = 1 - \left(\frac{1 - e^{-k\tau^*}}{k\tau^*} \right) e^{-k(\tau - \tau^*)}, \text{ for } \tau \geq \tau^* \qquad (2)$$

Conclusion: The degree of influence of the transient duration depends on the intensity of the heat exchange to the surface of the blade. An increase in this duration reduces the maximum nonuniformity of the blade temperature. Orig. art. has: 5 formulas and 8 figures.

ASSOCIATION: Vsesoyuzny*y teplotekhnicheskiy institut (All-Union Power Engineering Institute)

SUBMITTED: 00 DATE ACQ: 22Jun64 ENCL: 00

SUB CODE: SD, PH NO REF SOV: 005 OTHER: 003

Card 3/3

ACCESSION NR: AT4010247 S/3052/63/000/003/0193/0200

AUTHOR: Plotkin, Ye. R. (Moscow); Molchanov, Ye. I. (Moscow)

TITLE: Thermal stresses in a turbine blade with fluctuations in gas temperature

SOURCE: AN UkrSSR. Institut mekhaniki. Teplovy*ye napryazheniya v elementakh konstruktsiy; nauchnoye soveshchaniye. Doklady*, no. 3, 1963, 193-200

TOPIC TAGS: thermal stress, turbine, turbine blade, gas turbine, turbine gas temperature, thermodynamics

ABSTRACT: During the operation of gas turbines, conditions of periodically varying gas temperature are frequently encountered. Such conditions may be caused by instability of combustion chamber work or may arise at turbine load changes. Gas temperature oscillations with a frequency of 1.5 - 3.0 to 60 cycles/sec. and amplitudes in excess of 20% of the mean gas temperature can be provoked by instabilities, while load changes are accompanied by lower frequencies with a period of several seconds and even minutes and amplitudes up to several times the difference between initial and final temperature values. Gas temperature oscillations cause corresponding temperature oscillations in turbine rotating and stationary (guide vanes) blades, particularly along the

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ACCESSION NR: AT4010247

t_g = gas temperature,
t_m = mean plate temperature,
t_s = plate surface temperature.

The solution implies that t_m follows a simple harmonic oscillation with a phase shift against the gas temperature oscillation. The relative amplitude of plate temperature oscillations and the phase shift angle depend on the parameter $KT = \frac{\alpha D}{c_g \rho_m} T$, where T is the period of gas temperature oscillations. The analysis shows that even at a relatively high film coefficient α = 1116 W/m^2-°C, where W stands for Watts, gas temperature oscillations with a period of less than 0.5 sec have little influence on the blade temperature. It is concluded that gas temperature oscillations of high and medium frequency (10cps and more) behind the combustion chamber do not endanger the strength of gas turbine blades. Low frequency (1.5 to 3 cps) gas temperature oscillations behind the combustion chamber significnatly influence the temperature of very thin edges (approximately 0.5 mm) only, where the oscillation amplitude can reach 15% of the gas temperature oscillation amplitude. Transient processes arising from load changes have a greater influence on the blade temperature distribution. The edge temperature practically follows the gas temperature. However, increasing the edge thickness considerably reduces the relative amplitude of temperature oscillations.

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ACCESSION NR: AT4010247

The mean temperature of the central, thicker portion of a blade section changes little at gas temperature oscillations, at least at periods up to 20 seconds. When approximate solutions obtained by the above-mentioned method were compared with exact solutions produced with the aid of a hydraulic integrator, no significant discrepancies were found. An exact solution has been obtained for the case of a working blade of a GT - 12 - 3 turbine at gas temperature oscillations and at film coefficient α = 893 W/m^2 -°C. Solutions have been obtained for the transient blade temperature field at gas temperature oscillation periods of 3, 12, 30, and 120 seconds. Thermal stresses have been computed for the case of gas temperature oscillations form 300 to 500C at a period T = 120 sec, corresponding to real conditions at idling turbine during tuning for operation. For a non-uniformly heated bar, the expression for thermal stress is:

$$\sigma_z = E\left\{\frac{\int E\beta t dF}{\int E dF} + y\frac{\int E\beta t y dF}{\int Ey^2 dF} + x\frac{\int E\beta t x dF}{\int Ex^2 dF} - \beta t\right\},$$

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ACCESSION NR: AT4010247

where E and β are modulus of elasticity and coefficient of linear thermal expansion, respectively, and x and y - coordinates of cross-section points with respect to the main thermoelastic bending axes. The results of stress calculations are shown in Fig. 2 of the Enclosure. Maximum stresses occur at the trailing edge reaching the value $\sigma_y = \pm 11183$ N/cm^2. On the basis of the computations, it was concluded that considerable temperature and thermal-stress oscillations can arise in the blades of a working gas turbine as a result of gas temperature oscillations, and, consequently, the blade life can be substantially decreased. Orig. art. has: 6 figures and 7 formulas.

ASSOCIATION: Institut mekhaniki akademii nauk UkrSSR (Institute of Mechanics, Academy of Sciences, UkrSSR).

SUBMITTED: 00	DATE ACQ: 17Jan64	ENCL: 02
SUB CODE: PR	NO REF SOV: 008	OTHER: 000

Card 5/7

ACCESSION NR: AT4010242 ENCLOSURE: 01

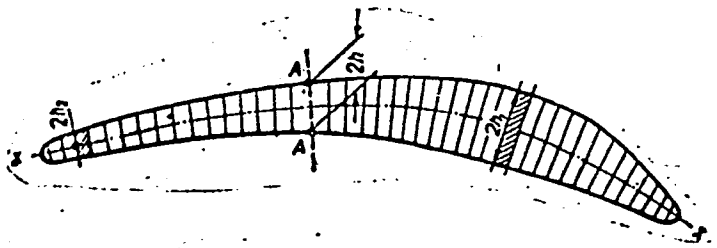

Fig. 1 - Gas turbine blade profile divided in strips to the profile for approximate thermal analysis

Card 6/7

ACCESSION NR: AT4010247

ENCLOSURE: 02

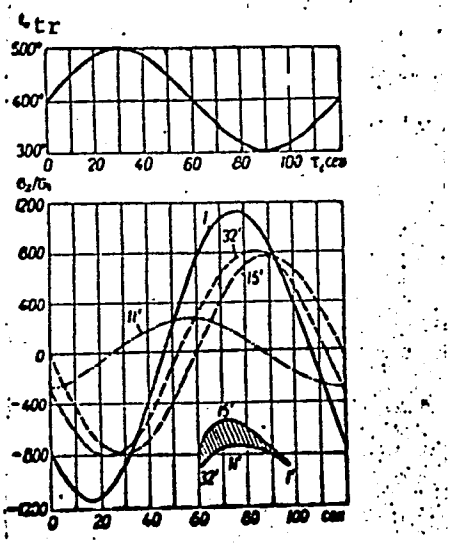

Fig. 2 - Gas Temperature and Turbine Blade Dimensionless Radical Thermal Stress σ_z Oscillations vs. Time. σ_1

$\sigma = 9.81 \frac{N}{cm^2}$ (N = Newton)

Card 7/7

PLOTKIN, Ye.R.; MOLCHANOV, Ye.I.

Fluctuations of temperature and thermal stresses inside a turbine blade with pulsating gas temperature. Inzh.-fiz.zhur. 6 no.2:25-30 F '63. (MIRA 16:1)

1. Vsesoyuznyy teplotekhnicheskiy institut imeni F.E. Dzerzhinskogo, Moskva.
(Thermodynamics) (Gas turbines)

MOLCHANOV, Ye.I., kand.tekhn.nauk; PLOTKIN, Ye.R., kand.tekhn.nauk

Temperature distribution in the zone of the neck connection of the cooled blade of a gas turbine. Teploenergetika 10 no.6:58-61 Je '63. (MIRA 16:7)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Gas turbines)

ACCESSION NR: AT4010246 S/3052/63/000/003/0181/0192

AUTHOR: Plotkin, Ye. R. (Moscow); Molchanov, Ye. I. (Moscow)

TITLE: Experimental investigation of the temperature field and evaluation of the stress in gas turbine blades operating at varying speeds

SOURCE: AN UkrSSR. Institut mekhaniki. Teplovy*ye napryazheniya v elementakh konstruktsiy; nauchnoye soveshchaniye. Doklady*, no. 3, 1963, 181-192

TOPIC TAGS: turbine, gas turbine, turbine blade, turbine operation, turbine blade temperature, turbine blade stress

ABSTRACT: Turbine blades were tested in a variable temperature field when starting and at varying gas turbine speeds, using thermocouples for measurement. Four stages of operation were studied: 1. Starting of the cold engine and acceleration to idling speed. 2. Increase of the load (after 7 min) for 3 min. 3. Decrease of the load (14 min after starting) to idling speed in 2 min. 4. Switching off the combustion chamber while the turbine is running at idling speed (20 min after starting). Besides, the combustion chamber was switched off while running under load. Results are shown in graphs. Analysis shows that starting or changing the load after five minutes or more does not lead to accidents, even with large turbine blades. Orig. art. has: 9 figures.

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ACCESSION NR: AT4010246

ASSOCIATION: INSTITUT MEKHANIKI AN UkrSSR (Mechanics Institute AN UkrSSR)

SUBMITTED: 00 DATE ACQ: 17Jan64 ENCL: 00

SUB CODE: PR, AP NO REF SOV: 006 OTHER: 000

Card 2/2

PLOTKIN, Ye.R., kand. tekhn. nauk; TRUBILOV, M.A., kand. tekhn. nauk

Start of steam turbines using steam with nominal and sliding parameters. Teploenergetika 10 no.9:6-8 S '63. (MIRA 16:10)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Steam turbines)

PANIN, V.V. ; MOLCHANOV, Ye.I.; PLOTKIN, Ye.R.

Heat processes during the solidification of ingots following electric slag refining. Izv. vys. ucheb. zav.; chern. met. 6 no.9:83-87 '63. (MIRA 16:11)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.

L 10622-63 EWP(r)/EWT(m)/BDS--EM

ACCESSION NR: AP3000682 S/0096/63/000/006/0058/0061

52
51

AUTHOR: Molchanov, E. I. (Candidate of technical sciences); Plotkin, Ye. R. (Candidate of technical sciences)

TITLE: Temperature distribution in the zone of the root joint of a cooled gas-turbine blade

SOURCE: Teploenergetika, no. 6, 1963, 58-61

TOPIC TAGS: turbine-rotor blade, gas turbine, turbine-blade cooling

ABSTRACT: The temperature distribution in a turbine rotor blade at 760C gas temperature and 170C cooling-air temperature was calculated by the hydraulic analog method for the following arrangements of cooling-air introduction and at a total air feed rate of 16.8 kg/hr: 1) under the blade rim, to the upper and lower part of the fir-tree joint, and under the root; 2) under the blade rim only; and 3) under the rim and the root. The temperature distribution in four cross sections of the blade and in two sectons of the fir-tree joint were plotted graphically for the different cooling arrangements under steady and unsteady operating conditions. The results showed that the highest cooling

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L 10622-63
ACCESSSION NR: AP3000682

efficiency is attained when the air is introduced to the upper and lower part of the fir-tree joint and the lowest when it is introduced under the root. Considerable longitudinal temperature gradients occur under steady operating conditions, and nonuniform temperature distributions are established in the blade and the joint. These temperature gradients cause thermal stresses which must be considered in calculating the blade strength. A decrease in the air-feed rate does not substantially affect the temperature distribution in the blade and joint, provided that the heat transfer coefficient from the air remains constant. At small feed rates the air is heated by 100—150C during passage through the slots in the joint; this, however, does not affect the radial temperature distribution in the blade. Therefore, the air flow rate can be economically minimized in the cooling system considered. In evaluating the temperature distribution under nonsteady operating conditions, longitudinal heat flows along the blade can be neglected and the problem can be solved by two-dimensional analysis. Orig. art. has: 8 figures.

ASSOCIATION: Vsesoyuzny*y teplotekhnicheskiy institut (All-Union Institute of Heat Engineering)

Card 2/2

S/114/63/000/001/002/007
D262/D308

AUTHORS: Molchanov, Ye.I., Candidate of Technical Sciences, and Plotkin, Ye.R., Engineer

TITLE: Temperature and stress states of rotor GT-25-700 (GT-25-700) at starting-up and steady working conditions

PERIODICAL: Energomashinostroyeniye, no. 1, 1963, 19-22

TEXT: The article presents the results of an investigation into the temperature fields and stresses in the rotor and blades of the seven-stage air-cooled gas turbine GT-25-700. The temperature distribution on the rotor and blade surfaces under steady working conditions is calculated using the hydraulic integrator designed by V.S. Luk'yanov, and the thermal stress distributions on the working blade surface for various times of the load increase (instantaneous, 2 min, 5 min) are evaluated and represented graphically. The air cooling system is also analyzed. Conclusions: By increasing the load-rise time thermal stresses can be lowered considerably and from point

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Temperature and stress states ...

of view of the rotor and blade strength, this time should be 5 - 8 min. Air tapped past the regenerator at 290°C, is recommended for this cooling turbine. There are 7 figures and 3 tables.

Card 2/2

PLOTKIN, Ye.R.; MOLCHANOV, Ye.I.

Use of "thermal paints" for measuring the temperature of machine parts. Zav.lab. 28 no.2:203-205 '62. (MIRA 15:3)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Machinery) (Temperature—Measurement) (Paint)

GEL'PERIN, I.I., kandidat tekhnicheskikh nauk; MINSKER, K.S.; PLOTKIN, Ye.R.

Using heat-elimination surfaces for controlling temperature in the zone of catalysis. Khim. nauka i prom. 2 no.2:233-237 '57.
(Catalysis) (Heat--Transmission) (MIRA 10:6)

PLOTKIN, YE.R.

PHASE I BOOK EXPLOITATION SOV/3871

Usovershenstvovaniye konstruktsiy i ekspluatatsii turbinnykh ustanovok; sbornik statey (Improvement in the Construction and Operation of Turbine Units; Collection of Articles) Moscow, Gosenergoizdat, 1959. 300 p. Errata slip inserted. 1,550 copies printed.

Eds. (Title page): Ya. M. Rubinshteyn, Professor, and A. V. Shcheglyayev, Corresponding Member, Academy of Sciences USSR; Ed. (Inside book): L. N. Sinel'nikova; Tech. Ed.: P. M. Azanov.

PURPOSE: The book is intended for engineers specializing in the design and operation of turbine equipment.

COVERAGE: This collection of 22 articles deals with aspects of turbine operations, particularly, variations in the heat performance of steam turbines and computation of optimum parameters for gas turbines. Turbine performance indices and a number of methods for more accurate determination of control parameters for specific cycles are presented. No personalities are mentioned. References follow several of the articles.

AVAILABLE: Library of Congress

AC/ym/fal

L 37665-65 EWT(m)/EWP(w)/EWP(v)/T-2/EWP(k) Pf-4 Ei

ACCESSION NR: AP5003580 S/0114/65/000/001/0004/0007

AUTHOR: Molchanov, Ye. I. (Candidate of technical sciences); Plotkin, Ye. R. (Candidate of technical sciences); Goncharenko, Z. F. (Engineer)

TITLE: Investigation of the temperature fields in a gas-turbine rotor blade cooled by forcing air through clearances in its root fit

SOURCE: Energomashinostroyeniye, no. 1, 1965, 4-7

TOPIC TAGS: rotor blade, gas turbine, blade temperature distribution

ABSTRACT: The results are reported of a theoretical investigation of the temperature fields in the root and body of a rotor blade in the first stage of a GT-25-700 gas turbine. The distribution of local values of the heat-transfer coefficient along the blade surface and in the blade root is calculated. The temperature field was determined on a hydraulic simulator which comprised 16 elements; it was found that the highest radial temperature gradient occurs in the

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ACCESSION NR: AP5003580 0

shank region of the blade and that the temperature is distributed nonuniformly in the blade root. With 177C cooling air, the shank region temperature difference was 85C. The effect of the clearance size on the blade temperature distribution is also evaluated. With higher initial temperatures, the temperature distribution in the blade root and rotor fastening teeth is more uniform. A better temperature distribution occurs in the design where a rectangular shim is used in the blade fastening (as in airborne gas turbines). Orig. art. has: 6 figures, 3 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: PR

NO REF SOV: 006 OTHER: 001

mll

Card 2/2

PLOTKIN, Z.I.,
N. I. SHUIKIN, ZhOKh 4, 1444-50 (1934)

PLOTNIKA, A. A.

"Advances in the Treatment of Gonorrhea."

Vestnik vererologii i dermatologii (Bulletin of Venerology Dermatology), No 1, January-February 1954, (biomper), Moscow.

PLOTKINA, D. YE

GLUZMAN, M.Kh.; PLOTKINA, D.Ye.

Reactions with participation of solid organic substances. Part 3: Interaction between solid amines and solid maleic anhydride. Uch. zap. KHGU 71:187-195 '56. (MLRA 10:8)
(Chemical reactions) (Amines) (Maleic anhydride)

TATARENKO, Ye.S.; PLOTKINA, D. Ye.; VYSOTSKAYA, M.A.; GERASIMOVA, I.P.; TERNIKOVA, I.P.; DYSHKANT, M.G.

Production of itaconic acid by Aspergillus terreus. Mikrobiologiia 32 no.6:1078-1086 N-D '63 (MIRA 18:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut pishchevoy promyshlennosti.

PLOTKINA, D. E.

M. Kh. Gluzman, L. S. Flaltnik and D. E. Plotkina. Polymorphism of 2-metoxy-7-o ino-fluorenon. P. 10

The State University
Khar'kov
Oct. 5, 1949

SO: Journal of Physical Chemistry, Vol. 25, No. 1 (Jan. 1951)

Plotkina, D.Ye.

USSR

"Eutectics in quasi-equilibrium in systems of the anhydride-amide type. M. Kh. Glazman, A. L. Gershuns, L. S. Palatnik, D. Ye. Plotkina, and R. S. Mil'ner (A. M. Gor'kiĭ State Univ., Kharkov). *Zhur. Fiz. Khim.* 27, 1564–70(1953); cf. *C. A.* 43, 7933b.—The appearance of a liquid phase (*P*) in a binary org. systems (*A*–*B*) at the temp. T_E, 10–20° below the m.p. (T_A) of the eutectic (*A* + *C*)–(or *B* + *C*), where either *A* or *B* is an amide, the other is an acid anhydride (or acid, or acid chloride), and *C* is the compd. formed in the reaction of *A* and *B*, was observed by the "impulse contact" method; in this a crystal of *A* was placed on a thin layer of *B* at several known temps. on a microscope stage. T_E was the lowest temp. at which the liquid phase was seen. *P* was a quasi-equil. eutectic (*A* + *B*) whose eutectic point lay on the continued liquidus branch of the equil. diagram of the system (*A*–*B*). The rate of reaction of powd. mixts. of *A* and *B* upon sintering, measured as a function of temp., displayed a sudden, sharp rise as the increasing temp. reached T_E; this was due to the formation of an undercooled liquid phase. A phase diagram of the system phthalic anhydride (I)-2-naphthylamine (II) is given. The m.p. of *A*, *B*, and *C*, T_E, Γ_e, yield of *C* at the temp. T_e and concn. of *P* are tabulated for the systems I–anthranilic acid (III), I-*p*-aminobenzoic acid, I-II, I-*m*-nitroaniline (IV), I-*p*-nitroaniline (V), V–succinic anhydride (VI), VI–norsulfazole, VI–*o*-nitroaniline, IV–VI, VI-*p*-chloroaniline, VI-*p*-toluidine (VII), VI–1-naphthylamine (VIII), III–VI, VI–4-aminoantipyrine, VI–2-aminothiazole, V–maleic anhydride, VIII–"carbomethoxysulfanyl chloride" (IX), II–IX, and VII–IX. J. W. Loweberg, Jr.

PLOTKINA, M.; POZIN, B.

Hidden potentialities for the increase of labor productivity in the production of construction glass. Sots. trud. 6 no.5:58-60 My '61. (MIRA 14:6)

(Glass manufacture)
(Labor productivity)

PLOTKINA, M.A.; POZIN, B.L.

Efficiently use window and polished glass in the national economy. Stek. i ker. 21 no.1:37-40 Ja '64. (MIRA 17:8)

PLOTKINA, M.; POZIN, B.

Methodology for planning labor productivity in the glass industry. Biul.nauch. inform.: trud i zar. plata 5 no.3:3-7 '62. (MIRA 15:3)

(Glass manufacture--Labor productivity)

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Production cost must be lowered in all plants. Stek.i ker.12 no.7:20-21 Jl '55. (MLRA 8:10)

1. Nachal'nik planovogo otdela Glavstroysteklo
(Glass industry--Costs)

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Ways to lower the net cost of window and polished glass in 1961-1963. Stek.i ker. 18 no.9:40-42 S '61. (MIRA 14:10)
(Glass manufacture--Costs)

15(2)

AUTHORS: Plotkina, M. A., Pozin, B. L.

SOV/72-59-11-12/13

TITLE: On the Method of Analyzing the Productivity of Glass Industry

PERIODICAL: Steklo i keramika, 1959, Nr 11, pp 41-42 (USSR)

ABSTRACT: The method of determining the productivity on the basis of the calculation of the gross production per worker gives a distorted picture of the actual quality of the workers, which the authors demonstrate by means of examples. Under the production conditions prevailing in many Soviet glassworks in which a number of subsidiary activities are carried out, it would be more exact to calculate the work input per unit of production. The Proyektno-konstruktorskoye byuro Instituta stekla (Planning and Designing Office of the Glass Institute) has been dealing with this problem since 1958 and has so far investigated the following plants: Krasnousol'skiy, "Velikiy Oktyabr'", Gomel', Ivot, Konstantinovskiy "Avtosteklo", and Ashkhabad. This work is carried out by Engineers Pozin, Tsibul'skaya, Dobroserdova, Chernyak, Ponomarev, Filyakina. The working method consists in preparing an index card for each course of production. The individual operations are entered on these cards. On the basis of these index cards, a master chart of

Card 1/2